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**BOAT INFORMATION BOOK  
FOR**

**11-METER NAVAL SPECIAL  
WARFARE (NSW), RIGID  
INFLATABLE BOAT (RIB), FY 97**

**( Description, Operation, Maintenance,  
and Illustrated Parts Breakdown )**

UNITED STATES MARINE, INC.

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CCD

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**02 FEBRUARY 1998**

## CHAPTER 1

### GENERAL INFORMATION AND SAFETY PRECAUTIONS

#### Section I. INTRODUCTION

##### 1-1 PURPOSE.

This manual contains descriptive information and operation and maintenance instructions for the 11-Meter Naval Special Warfare (NSW) Rigid Inflatable Boat (RIB), FY97 (Figure 1-1). Operated by a three-person crew, the RIB is designed for the insertion and extraction of SEAL team personnel. It is a twin-turbocharged diesel engine, waterjet-propelled personnel carrier with a fiber reinforced plastic (FRP)

hull and an inflatable sponson. The RIB is built by United States Marine Inc., New Orleans, Louisiana 70129, phone: (504) 254-4444.

##### 1-2 PRINCIPAL CHARACTERISTICS.

Table 1-1 provides data on the principal characteristics of the 11-Meter NSW Rigid Inflatable Boat, FY97.

Table 1-1. Principal Characteristics

Item	Data
Length (overall, max, sponsons inflated) .....	10.95 m
Beam (max, sponsons inflated) .....	3.23 m
Beam (max, sponsons deflated) .....	2.67 m
Draft to Keel (full load) .....	0.89 m
Displacement (full load) .....	7801.9 kg
Weight (hoisting) .....	8000 kg
Load Capacity (including crew) .....	1820 kg
Hoisted By .....	4-leg sling
Fuel Capacity .....	837 L
<b>Engine</b>	
Manufacturer .....	Caterpillar Inc.
Model .....	3126 DITA
Quantity .....	2
Brake Horsepower (per engine) .....	470 hp (350KW) @ 2975 rpm
<b>Waterjet</b>	
Manufacturer .....	KAMEWA
Model .....	FF 280 Mix
Rated Thrust .....	5800 lbs.
Rotation .....	Clockwise (viewed from drive-end)
<b>Electrical System</b>	
Type (nominal) .....	24 Vdc
<b>Batteries</b>	
Type .....	12 Vdc
Capacity .....	1000 CCA
Reserve Capacity .....	TBD reserve capacity
Quantity .....	4
Speed (full load) .....	46 kn

Table 1-1. Principal Characteristics (Continued)

Item	Data
Cruising Range, Maximum (full load) .....	175 nmi
Construction	
Hull .....	FRP
Sponson .....	Hypalon coated nylon with 5 inflation compartments each side
Armament (two mounts - one fwd and one aft) .....	Weapon stand - MK 16, Mod 0 Gun Mount - MK 64, Mod 4 MK19, Mod 3 40-mm grenade machine gun or M60 7.62-mm machine gun or .50 caliber machine gun
Crew .....	3
Capacity (including crew) .....	11

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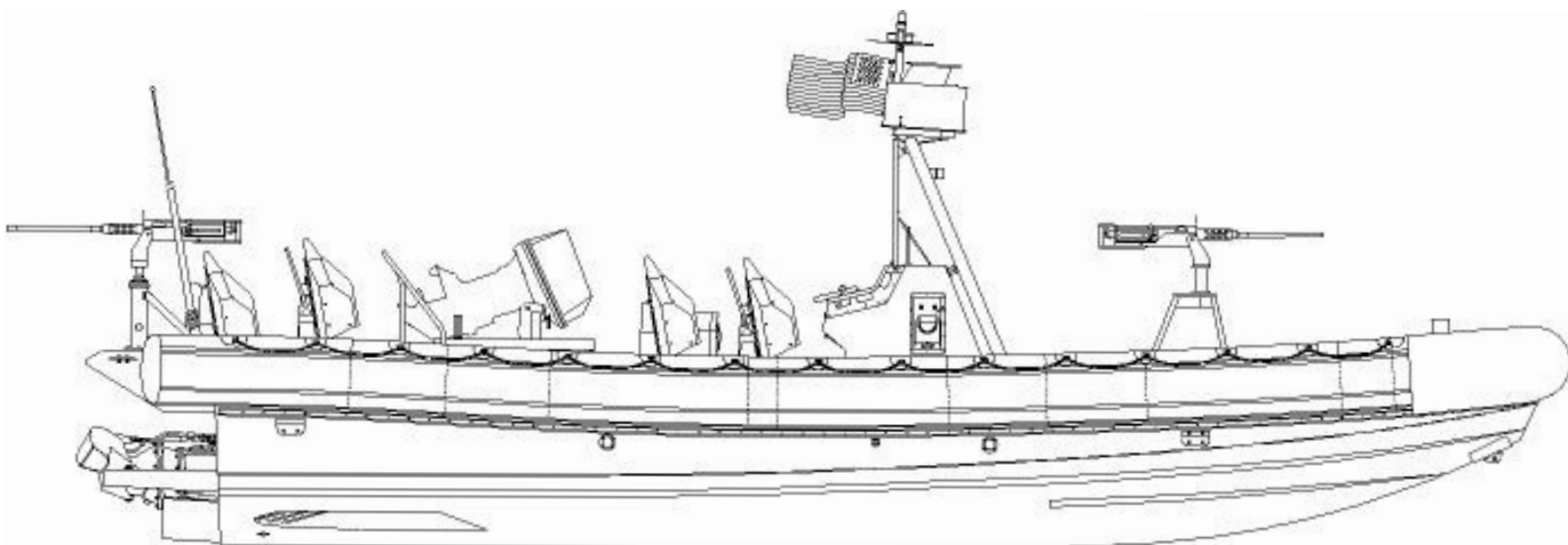


Figure 1-1. 11-Meter NSW RIB, FY97

## Section II.

### GENERAL DESCRIPTION

#### 1-3 HULL STRUCTURE FEATURES.

The hull is constructed of fiber-reinforced plastic (FRP). The inflatable tube (sponson), which is constructed of Hypalon, a urethane-coated nylon fabric, rests in a fabricated cradle formed around the perimeter of the main deck and is held in place by the inboard and outboard securing skirts. Two below deck stowage compartments are located between bulkheads 1,2 and 3, forward of the console. The fuel tanks are located between bulkheads 4 and 5, forward of the engine compartment, port and starboard of centerline. The engine compartment is located between bulkheads 5 and 6 and aft of the control console. The marine jet propulsion unit (waterjet) area is located just forward of bulkhead 8 and extends aft beyond the transom.

The control console and engine air intake is installed forward of the engine compartment. Three bolster/seats are installed aft of the control console for the crew. Passengers ride the boat in bolsters/seats, two just aft of the crew seats (forward of the engines) and six aft of the engine area and forward of the transom. A removable armament foundation is mounted on the main deck level over bulkhead 2 on centerline. A second armament mount is located on the aft tow post. The weapon mounts provides for the use of 2 different machine guns and a grenade launcher.

#### 1-4 OPERATIONAL SYSTEMS.

The following operational systems and machinery are provided on the boat and are described in the following paragraphs.

1. Propulsion system.
2. Fuel system.
3. Seawater cooling system.
4. Bilge pumping system.
5. Steering system.

6. Electrical system (24 Vdc).
7. Electronics system.
8. Exhaust system.
9. FLOCS system.
10. Armament.

1-4.1 PROPULSION SYSTEM. The propulsion system consists of two separate assemblies, one port and starboard. Each of these assemblies consist of the following: diesel engine, reduction gear, spicer shaft, and transom-mounted jet propulsion unit, and related systems and controls. The engine and waterjet controls and indicators are located on the control console. Hour meters are located in junction boxes on each engine.

1-4.2 FUEL SYSTEM. The fuel system removes impurities from the fuel, provides fuel to the engines, returns excess fuel to the bladders, and vents the bladders. The fuel system includes two electric fuel pumps; two 246-liter fuel bladders; fuel strainers and filters; fuel/air separators; shutoff valves; interconnecting lines, and two stripping valves. The bladders are filled through fill pipes located on the main deck, port and starboard of the operators console. Each bladder has aft vent lines with shutoff valves and locking devices. A hand-operated fuel stripping valve is mounted on the forward bulkhead of the engine compartment. One valve is provided for each port and starboard fuel bladder. The shutoff valves are used to strip the fuel bladders of water and/or fuel.

1-4.3 SEAWATER COOLING SYSTEM. The primary supply of cooling seawater is from scoop pickups that are mounted in the hull just forward of the transom. Water from these pickups passes through gate valves and strainers, then through the steering system hydraulic oil heat exchanger to an enginemounted pump. The seawater is then routed through the engine heat exchangers, the reduction gear heat exchangers, and then over the side through the engine exhaust system. The seawater side of the

engine cooling water system is flushed using a 3/4-inch flushing connection. Connecting a source of fresh water to this system supplies the fresh water to the cooling water system at the discharge side of the strainer.

**1-4.4 BILGE PUMPING SYSTEM.** The bilge pumping system provides a means to remove water from the bilge. The system consists of four, 24-Vdc electric bilge pumps, check valves, overboard discharges, a hand-operated bilge pump, stripping hand bilge pump and two float switches for the aft mounted pumps. The two forward pumps have built-in float switches. Each waterjet compartment electric-driven pump is rated at 4000 gph and can be operated manually or automatically by a switch located on the control console. The two forward bilge pumps are rated at 1200 gph and drain the forward stowage areas. The self-priming hand pump is located aft in the engine compartment.

**1-4.5 STEERING / REVERSING SYSTEM.** The steering / reversing system is a manual hydraulic system consisting of a helm pump unit, two hydraulic pumps, two steering hydraulic cylinders, two reversing hydraulic cylinders, priority valve, HSRC controls, and related hoses, valves and fittings. Hydraulic pressure actuated by the helm pump unit and steering wheel is used in the hydraulic cylinder to move the waterjet steering nozzles in the desired direction. One hydraulic pump mounted on each engine draws on a common reservoir through a filter, and discharge to the Hydraulic Steering and Reverser Control (HSRC) valves. Push-Pull cable inputs from the reverser control lever on the operator's console direct the HSRC valve to route high pressure fluid from one of two other high pressure ports, which are connected to the reverser cylinder.

**1-4.6 ELECTRICAL SYSTEM.** The electrical system consist of a 24 Vdc electrical distribution system. Power to the engine starters, the electric bilge pumps and other ship's service loads is supplied from two 12 Vdc batteries wired in series. Communication and navigation equipment power is supplied from two 24 Vdc batteries that are wired in series. Where necessary, 24/12 Vdc converters are used. Refer to Section 4-8 for more information on the electrical system. A grounding bus is installed in the hull. It terminates at a pair of ground plates,

which are mounted on the outside of the hull, between the jet drives.

**1-4.7 ELECTRONICS SYSTEM.** The electronics system consists of a Tactical Radio System (TRS) and a VHF radio transceiver, marine radar, color video depth sounder/speed log, global positioning system (GPS) navigation set with remote antenna, magnetic compass, infra-red strobe, and a radome antenna, VHF tactical, marine, and HF antennas. The surface search radar system is a combination transceiver and display unit with a remote antenna. The radar display unit is a high definition, eight-inch raster scan display that has on-screen alphanumeric readout of all operational information with a maximum 15 ranges from .125 to 36 nautical miles. The depth sounder gives an eight-color presentation (including background) on a six-inch diagonal cathode ray tube (CRT), which gives detailed information on the nature of the bottom. A digital display of navigational data and water temperatures, in addition to water depth. The GPS navigation set receives data from GPS satellites and calculates and displays position, velocity, time, and navigational data. Each satellite transmits data that enables the GPS navigation set's receiver to provide precise position and time. Three-dimensional axes are obtained when tracking four or more satellites; two-dimensional axes can be obtained from three satellites and user-entered altitude.

**1-4.8 EXHAUST SYSTEM.** The exhaust system consists of the FRP exhaust collector, FRP elbows, interconnecting marine exhaust hoses and clamps. Its purpose is to cool hot engine exhaust gases and muffle exhaust noise. Each engine has an independent exhaust system that extends from the engine manifold to the transom overboard discharge. The exhaust gases are discharged through the hull at the transom, port and starboard.

**1-4.9 ARMAMENT.** The boat is provided with two weapon mounts located on the forward main deck area and aft. The MK 16 MOD 0 stand provided with the craft, and the MK 64 MOD 4 mount will receive the following weapons and associated hardware; MK19 MOD 3 40-millimeter grenade launcher or a M60 7.62-millimeter machine gun or a .50 caliber machine gun.

1-5     **LABEL PLATES AND MARKINGS.**

Label plates with boat information, hoisting capacities, and sponson inflation data are located on the control console. Additional label plates designating stowage locations, lubrication instructions, warnings, and designation of access panels

are installed in related areas. A label plate is mounted adjacent to each electrical circuit breaker. Wiring circuits are tagged to identify the cable's purpose and connected component. The boat's registry number is located on the outboard surface of the transom between the sponsons. This number provides specific information about the boat.

Table 1-2. Technical Manuals



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Table 1-3. Construction Drawings

Title	USMI Drawing Number
Outboard Profile and General Arrangement	A-1
Inboard Profile, Hold Plan and Sections	A-2
Console Arrangement	A-3
Bolster Arrangement	A-4
Hatch Details	A-5
Hoisting Arrangement	A-6
Outboard Motor and Fuel Bladder Stowage Arrangement	A-7
Machinery Arrangement	A-8
Hull and Deck Lines	C- 1
Curves of Form	C-2
Electrical One-Line Drawing	E-1
Electrical Wiring Diagram	E-2
Electronics Wiring Diagram	E-3
Exhaust System Drawing	P-1
Fuel Oil System Drawing	P-2
Hydraulics System Drawing	P-3
Sea Water and Bilge Systems Drawing	P-4
Waterjet Control System Details	P-5
Laminate Schedule and Construction Details	S-1
Foundations, Mast and Arch Drawing	S-2
Engine Foundations and Brackets	S-3
Miscellaneous Brackets	S-4

Table 1-4. Technical Authorities

Technical Area	Cognizant Authority
Planning Yard	Puget Sound Naval Shipyard Detachment, Boston Code 284 495 Summer Street Boston, MA 02210-2181
Technical Support Activity (TSA)	Carderock Division NAVSURFWARCEN DET, Norfolk 116 Lake View Parkway Suite 200 Suffolk, VA 23435-2698
Allowance Parts List (APL)	Naval Ships Parts Control Center Code 0543 P.O. Box 2020 5450 Carlisle Pike Mechanicsburg, PA 17055-0788
Planned Maintenance System (PMS)	Naval Sea Support Center, Pacific P.O. Box 85548 San Diego, CA 92138-5548
Boat Program Manager	USSOCOM (SOAE-M&R RIB) 7701 Tampa Point Blvd. MacDill AFB, Fl. 33621
Technical Manual Maintenance Activity (TMMA)	Carderock Division NAVSURFWARCEN DET, Norfolk 116 Lake View Parkway Suite 200 Suffolk, VA 23435-2698
Microfilm Drawings	Portsmouth Naval Shipyard Portsmouth, NH 03804-5000
Building Yard	United States Marine Inc. 19807 Chef Menteur Hwy. New Orleans, LA 70129

Table 1-5. Metric Conversion Factors

Measurement to be Converted	Factor	Converted Measurement
Meters (m)	x 39.37	= Inches (in.)
Meters (m)	x 3.281	= Feet (ft)
Meters (m)	x 1.094	= Yards (yd)
Inches (in.)	x 25.40	= Millimeters (mm)
Inches (in.)	x 2.54	= Centimeters (cm)
Inches (in.)	x 0.0254	= Meters (m)
Feet (ft)	x 0.305	= Meters (m)
Yards (yd)	x 0.914	= Meters (m)
Square Inches (in <sup>2</sup> )	x 6.452	= Square Centimeters (cm <sup>2</sup> )
Cubic Inches (in <sup>3</sup> )	x 16.39	= Cubic Centimeters (cm <sup>3</sup> )
Cubic Centimeters (cm <sup>3</sup> )	x 0.061	= Cubic Inches (in <sup>3</sup> )
Gallons (gal)	x 3.785	= Liters (L)
Liters (L)	x 0.2642	= Gallons (gal)
Kilometers (km)	x 0.5397	= Miles (nautical)
Meters (m)	x 5.396 x 10 <sup>-4</sup>	= Miles (nautical)
Miles (nautical)	x 1.853	= Kilometers (km)
Pounds (lbs)	x 0.4536	= Kilograms (kg)
Kilograms (kg)	x 2.2046	= Pounds (lbs)
Kilopascals (kPa)	x 0.145	= Pounds (in <sup>2</sup> )
Pounds (in <sup>2</sup> )	x 6.894	= Kilopascals (kPa)
Degrees Centigrade	(°C x $\frac{9}{5}$ ) + 32	= Degrees Fahrenheit
Degrees Fahrenheit	$\frac{5}{9}$ (°F - 32)	= Degrees Centigrade

**Section IV.**  
**SAFETY PRECAUTIONS**

**1-9 SAFETY INSTRUCTIONS.**

Safety precautions are included in various chapters of this manual. Precautions to be observed during boat operation are contained in chapter 4, during

performance of maintenance in chapter 6, and during handling in chapter 8. All general and specific warnings and cautions are contained in the Safety Summary, which is located in the front matter of this manual.

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## CHAPTER 2

### GENERAL ARRANGEMENT

#### 2-1 INTRODUCTION.

This chapter describes the exterior and interior arrangements of the RIB. Stations and storage areas are located with respect to fixed, easily identifiable features (for example: engine compartment, bolsters, control console, etc.). Equipment locations, control and electrical cables, piping, lights, switches, and indicators are also identified. **See figure 2-1.**

#### 2-2 EXTERIOR ARRANGEMENT.

**2-2.1 SPONSON.** The sponson, with the exception of the transom, completely surrounds the boat in a molded cradle formed by the perimeter of the deck. Each port and starboard sponson contains five chambers with each inboard side of the chamber containing an inflation/deflation valve and a pressure-relief valve. External lifelines are provided along the top portion of the sponson, port and starboard. Internal lifelines are provided along the inboard portion of the sponson from the forepeak to the front of the engine compartment port and starboard.

**2-2.2 MAIN DECK.** The majority of the deck is covered with Treadmaster deck tread. A weapon mount is located on the bow, as are the hatches that open to storage compartments. A “pop-up” cleat is located in the bow for mooring and anchor lines. A sail track with cars is installed on the forward third of the hull, just inboard of the sponsons, to provide a flexible means of securing various loads. The track was arranged to allow two Combat Raiding Rubber Craft (CRRC) to be secured together on the bow, forward of the weapons station. Four cover plates are located in the deck of the cockpit. These 14 X 10 inch covers are removed to gain access to the fuel cell connections. Fresh air intake grilles are located on the forward, outside corners of the engine compartment. The ventilation blower exhausts are located on the aft outside corners of the engine compartment. A CO2 fire extinguisher is mounted on the forward, starboard corner of the console, just aft of the radar arch pedestal.

**2-2.3 CONTROL CONSOLE.** Directly aft of the forward deck area is the console. Approximately six inches of open deck on either side of the console provides for access to the bow. The console, which is shown on Figures 2- 1 and 2-2, houses all of the craft’s steering and propulsion system controls and indicators, as well as a majority of the navigation and communication equipment. The console structure supports the electronic sensor mast as well as handholds for the operator and other passengers. A CO2 fire extinguisher is mounted on the forward, starboard corner of the console, just aft of the radar arch pedestal.

**2-2.4 BOLSTER / SEAT SYSTEM.** A bolster/seat system is located directly aft of the console in the “cockpit.. The system allows the passengers to ride either seated or standing, while at the same time protecting them from being thrown around by the motion of the craft. There are three seats in front; the center position being the helmsman’s chair. Aft of the front seats are two seats that are arranged outboard to either side of the Drop-In Communications Package (DICP) receptacle. Aft of the forward five seats are the two engine compartment hatches. Aft of the engine compartment is the passenger bolster/seat system for six passengers. This system is essentially the same as the forward seating positions, except there are six seats, arranged in two rows of three. These seats may be removed to uncover the water jet compartment access hatches. Behind the seats is a platform/guard arrangement that serves as both a storage area and as a guard over the waterjet nozzles. The platform features sail tracks and cars to use when tying down two CRRC outboard motors and their associated fuel bladders, or whatever mission oriented gear, as required. There is a cleat mounted on the port and starboard sides of the platform, outboard of the stowage areas, for use with mooring or handling lines.

**2-2.5 MOORING AND TOWING FITTINGS.** The mooring fittings include a pop-up cleat on the bow, and two cleats located on either side of the platform/guard, aft. The bow eye, and two more

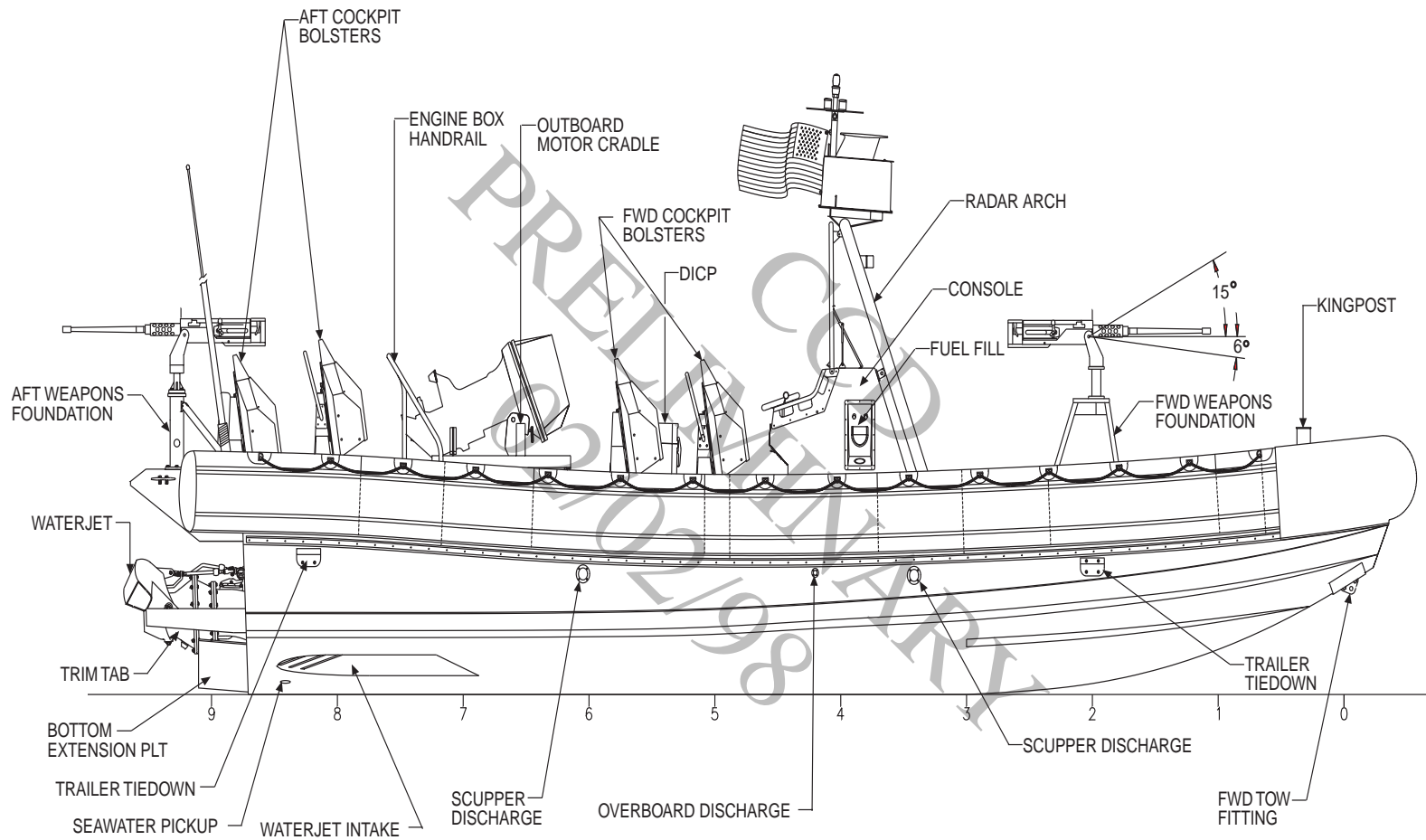


Figure 2-1. Exterior Arrangement

eyes on the transom are used to gripe the boat when it is stowed onboard a ship, or when it is on its trailer. The bow eye is the attachment point used when towing the craft.

**2-2.6 EXTERIOR DETAILS.** The following items are arranged throughout the craft and are either mounted or stowed in exterior clips or brackets.

**2-2.6.1 Ring Buoy and Emergency Distress Light.** One, 20-inch ring buoy, with float light, is stowed in mounting brackets under the weapon stand, within the tripod stand.

**2-2.6.2 Navigation Lights.** All around white and IR strobe marker lights are mounted on the navigation light mast located on the radar arch. Port and starboard running (side) lights are located on either side of the radar arch uprights. The power source for the navigation lights is the 24-Vdc electrical system.

**2-2.6.3 Antennas.** The boat has the following electronic equipment antennas. The multi-band Ball antenna is mounted on top of the radar arch. The multi-band antenna services the UHF LOS, UHF SATCOM, IFF, and GPS. VHF radio whip antennas are located aft and mounted over the transom, port and starboard. A VHF marine antenna is mounted on the starboard side of the control console forward of the radar arch.

**2-2.6.4 Infrared Strobe Light.** The infrared (IR) strobe system, consisting of a strobe light and power supply assemblers, is primarily used as a safety device to prevent the boat from being accidentally fired upon and an additional means of IFF. The IR strobe marker light is mounted on the navigation light mast.

**2-2.6.5 Hatches.** Two access hatches, located forward, provides access to the forward equipment stowage areas located forward and aft of the gun mount. An access hatch in the forward side of the console on centerline provides access to the console interior and (4) electrical system batteries. Four cover plates are located in the deck of the cockpit. These 14 x 10 inch covers are removed to gain access to the fuel cell connections. Two engine hatches, located above the engine compartment, provide access to the engine compartment. Two hatches located

aft of the engine compartment port and starboard provides access to the waterjet drives.

## **2-2.7 FITTINGS.**

**2-2.7.1 Hoisting Fittings.** The RIB is lifted using a four-leg sling. The sling is built specifically for this craft, using Spectra synthetic line. Figure 7-2 is an illustration of the hoisting arrangement. The port and starboard forward lift points are located forward, outboard of the weapons station. The aft lift points are located on the front of the transom. The forward passenger bolster/seat assembly must be tilted forward to clear the hoisting sling legs. A label plate on the console lists the hoisting data for the 50 and 100 percent overload tests. The boat has a slight bow-up attitude when it is hoisted. Refer to Section 7-5 for a description of the hoisting procedure.

**2-2.7.2 Towing Fittings.** The bow eye is the attachment point used when towing the craft.

**2-2.7.3 Tie-Down Fittings.** The mooring fittings include a pop-up cleat on the bow, and two cleats located on either side of the platform/guard, aft. The bow eye, and two more eyes on the transom are used to secure the boat when it is stowed onboard a ship, or when it is on its trailer.

## **2-3 INTERIOR ARRANGEMENT.**

The interior arrangement (Figure 2-2) consists of the below deck stowage, engine compartment, battery box, and waterjet areas.

**2-3.1 BELOW DECK STOWAGE.** The below deck stowage forward is located fore and aft of the weapon stand. Stowage provisions are provided for the anchor, chain, line, and miscellaneous storage. The 12-foot diameter sea anchor system includes 200 feet of 1 1/2-inch double braided nylon line, a float bouy, and associated chain and swivels.

**2-3.2 ENGINE COMPARTMENT.** The engine compartment is located aft of the control console. It contains the two propulsion engines, transmissions, universal joints and shaft assemblies, engine-driven alternators, hydraulic synchronize reverse control (HSRC) pumps, fuel, exhaust, and seawater cooling systems for each engine. The emergency

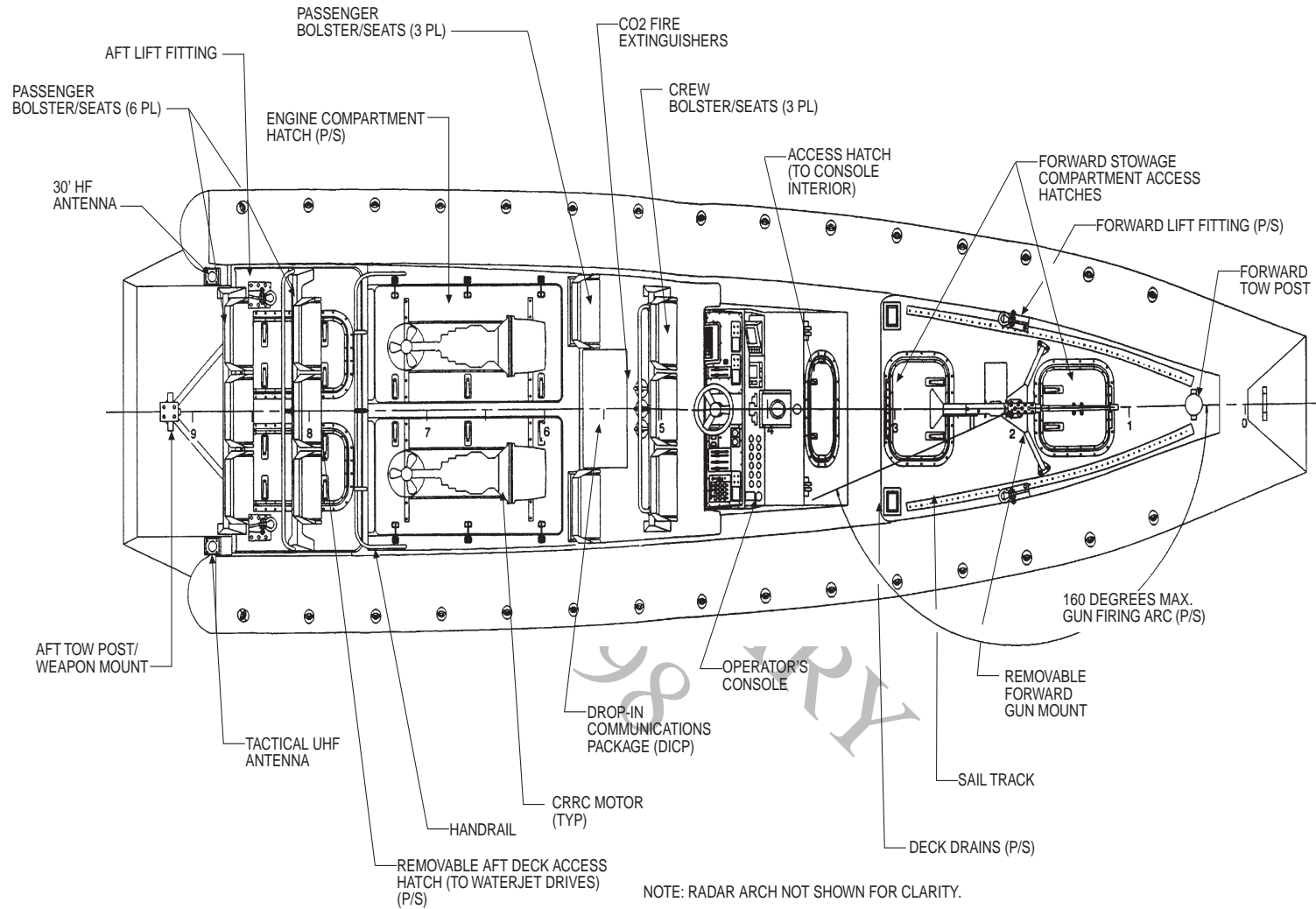


Figure 2-2. Interior Arrangement



fuel shutoff valves with push-pull cables, the emergency engine shutdown and speed control push-pull cables. These cables, plus the cables for the control console mounted instruments, enter the engine compartment from the control console.

**2-3.3 BATTERY AREA.** The two banks of batteries are each made up of two 12 Vdc Black Panther BP- 1000 maintenance-free, dry-cell batteries, that are wired in series to make 24 Vdc. One bank is designated for engine starting and ship service. The other bank is designated as the power source for the navigation and communication equipment. The battery banks may be momentarily paralleled to provide added capacity for starting the engines.

**2-3.4 WATERJET AREA.** The waterjet area is located aft of the engine compartment. It contains the two waterjet units, waterjet inlet, bearing housing, spicer shafts with universal joints, waterjet companion flanges, engine exhaust lines, electric bilge pumps, hand bilge pump, reverse control cable, and the steering control cable with hydraulic cylinder and steering tie rod. The waterjets are installed parallel to the hull bottom with the steering housing assembly and deflector outboard of the transom. Each waterjet unit has an overflow preventer that extends to the waterjet hatches above. The waterjet hatches, port and starboard, provide access fore and aft to the waterjet area. Each unit also contains a hatch serving as an inspection port and clean out which is located aft of the transom.

## **2-4 MISCELLANEOUS.**

**2-4.1 FIRE EXTINGUISHERS.** Three fire extinguishers are provided on the boat: two are five-pound carbon dioxide (CO<sub>2</sub>) extinguishers and the other is a five-pound dry chemical extinguisher. The (CO<sub>2</sub>) extinguishers are stowed on heavy-duty marine fittings. The two (CO<sub>2</sub>) extinguisher are located under the helmsman bolster/seat. A dry chemical fire extinguisher is mounted on the forward, starboard corner of the console, just aft of the radar arch pedestal.

**2-4.2 FUEL FILL/AND BLADDER VENTS.** The fuel oil for the engines is taken aboard through a fill receptacle on the port and/or starboard side of the console. The fuel is stored in two 246 liter

fuel bladders, which are located below the cockpit. The combustion air for the engines is taken through louvered openings in the engine enclosure. The enclosure is fitted with two intake openings that are located on the forward sides of the box, and two ventilation blower exhausts on the aft corners. The placement of the openings is also designed to provide natural movement of air through the engine box. The forward motion of the craft forces air into the forward openings, while the low air pressure behind the craft helps draw air out of the box from the aft openings.

**2-4.3 GUN MOUNT.** The gun mount tripod is located on the forward main deck area, station 2 on centerline. The Mk 16 Mod 0 stand with the Mk 64 Mod 4 weapon mount is set up to receive any of the following three weapons:

- a. MK19 Mod 3, 40-millimeter grenade launcher
- b. M60, 7.62-millimeter machine gun
- c. .50 caliber machine gun

**2-4.4 NAVIGATION HORN.** An electrical navigation horn is mounted on the port side of the control console. The horn is energized by a switch on the control console and is powered by the 24-Vdc electrical system.

**2-4.5 MAGNETIC COMPASS.** The boat is equipped with a magnetic compass recessed into the top of the control console.

**2-4.6 BATTLE LANTERN.** The boat is outfitted with one portable lantern in the engine compartment.

**2-4.7 BOAT HOOK.** A boat hook is stowed on the outboard side of the forward stowage box adjacent to the forward port toe rail in clips on the deck.

**2-4.9 STORAGE COVERS.** Two fitted storage covers are provided: one to cover the entire boat and one for the control console. With the radar arch and other collapsible and portable equipment stowed for transportation and with the sponson inflated, the entire boat cover fits over the complete craft to just below the water line. The control console cover fits over the entire control console. Both covers are held in place with a VELCRO fastening system.